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Effect of Leverage and Net Profit to the Firm Performance in Indonesia's Small Medium Enterprises (SMEs) Listed Firms

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Abstract

Whether large corporations or small medium enterprises (SMEs), it is of utmost importance for all companies to achieve good firm's performance in order to secure their existence in the economy, especially as publicly traded companies. The purpose of this study is to investigate the impact of firm's leverage and net profit on the performance of listed SMEs in Indonesia. A total of 148 samples of secondary data used for this study were obtained from the Pefindo25 SME Index for companies listed on the Indonesian Stock Exchange from 2012 to 2017. The result shows that the two independent variables, the leverage and net profit, have a significant impact on the firm performance of SMEs, in opposite directions; the leverage variable has a negative significant impact on firm performance, while the variable net profit has a positive impact on firm performance.

Keywords: SMEs, firm leverage, net profit, firm performance, listed companies

Introduction

As listed firms, whether a larger or small medium one, it is paramount for all firms to achieve a good firm's performance in maintaining their existence in the business. The returns on assets (ROA) is a common measurement for the firm performance regardless the differences of the firms sectors (Aliabadi et al., 2013). However, to measure firm performance, i.e., ROA, it is required to analyse the importance and reliable factors which related directly impact on such performance. According to Abu-Abbas et al. (2019) and Inam & Mir (2014) as well as Fajaria & Isnalita (2018), the firm's leverage and the net profit are the major factors to determine of the firm's performance. In addition, many academic literatures are only paid attention for the larger firms' performance in the developed nations as a research study; whilst it is quite dearth of conducting research on the firm's performance in the developing and emerging markets.

For that reason, the objective of this paper is to investigate the impact of firm's leverage and firm's net profit to the SMEs listed firms' performance in the emerging markets, namely Indonesia by applying a multiple linear regression approach model.

Literature Review

The importance of leverage can be seen in its presence in the capital structure of the company (Nadeem et al., 2015). Financial leverage is a cost saving and also reduces the risk of the owners, but it becomes expensive if the companies are not able to use it efficiently. Companies must pay financial fees for leverage. If companies do not use leverage effectively, they face many problems as they have to pay back the amount of leverage with interest charges. Profitable companies prefer to use leverage because it reduces the risk of the owners and saves costs for the shareholders of the companies (Chen et al., 2021).

Consequently, financial leverage shows that a company needs funds to acquire a new asset, improve its production or operational activities. It believes that financial leverage is one of the best ways for companies to achieve their goals (Iqbal & Usman, 2018). However, many studies and researches show that financial leverage and firm performance may have a negative relationship due to the high interest rate that may reduce the firm's financial performance (Abu-Abbas et al., 2019; Inam & Mir, 2014; Iqbal & Usman, 2018).

Meanwhile, the net profit of the company gives a good picture of the company's profitability and sustainability in future operations. Sales and net profit are the most important variables that affect financial performance in all real industries. The higher the net profit, the more likely the company performance (House & Benefield, 1995; Ramezani et al., 2002).

Research Method

Dataset Resources Description and Sample Study

The dataset used in this study was a secondary data which were collected and processed from the firms' annual report and financial statements of the SMEs listed firms in Indonesian Stock Exchange. The data used for this study was obtained from the Pefindo25 SMEs Index and using time-series data with total 148 total samples for the period 2012 to 2017.

According to Herdjiono & Sari (2017) the considerations for using sample methods are as follows: (1) the information and the shares liquidity from the Pefindo25 SME index which ranks the top 25 SMEs listed firms regularly; (2) the existence and continuous of firms annual reports and audited financial statements; and (3) the information contained in the annual report and/or audited financial statements include all the variables used in the study.

Nevertheless, after 2017 the Pefindo25 Index could not be representative as a SMEs index since Pefindo provider has increased the maximum total assets criteria up to Rp 10 Thrilion which can not be classified as a SMEs.

The raw data and special information taken from the audited financial statements/annual reports are processed and presented in the Microsoft Excel and then be input to the SPSS data sheet.

Measurement of Variables and Study Model

In this study, as an independent variables were determined by the firm's leverage (X_1) and the firm's net profit (X_2); whilst, firm performance as a dependent variable (Y) was measured by the Returns on Assets (ROA). The following table describe the variables and measurements items.

Table 1. Variables and Measurement

Labels	Variables	Measurements
Dependent variable		
Y	Operational performance (ROA – returns on assets)	Ratio of firm's net profit to the total assets
Independent variables		
X_1	firm's leverage	The ratio between firm total debt to the total assets
X_2	firm's net profit	The final profit (after deducted by the company's tax and interests)

Study Model

In order to measure the relationship between leverage, net profit and firm performance, the study uses a multiple-linear regression model. The multiple linear regression model is applied to study the relationship between a dependent variable and one or more independent variables (Greene, 2018; Joseph F Hair et al., 2014). The regression model equation mentioned is as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \varepsilon \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (1)$$

where,

Y = Returns on Assets (ROA);
β_0 = constant;
$\beta_{1\text{-}2}$ = slope of the independent variables;
X1 = firm's leverage;
X2 = firm's net profit;
ε = random error terms.

Results and Discussions

Scatterplot analysis

Before continuing in applying the multiple-linear regression method, according to Berenson et al. (2019), it is recommended to analyse the linear relationship between the

dependent and independent variables by charting a scatter plot between those variables to detect any non-linear relationship problems.

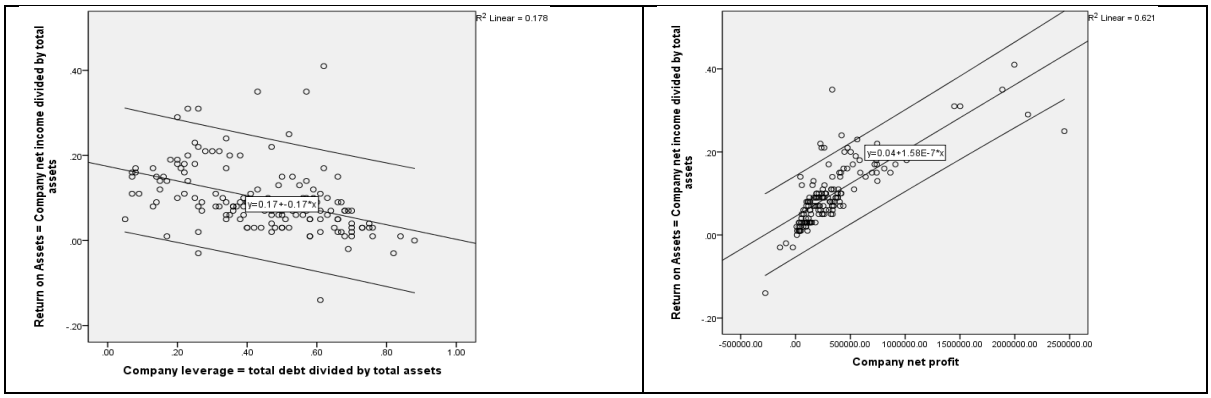

Figure 1. The Scatter Plot Chart between Dependent and Independent Variables

From the Figure 1 above, it shows there is a clear strong linear relationship between leverage and net profit as the independent variables to the ROA as a dependent variable. Therefore, applying the multiple-linear regression method for this model can be implemented.

Classical Assumption Test

The study used a multiple linear regression through applying an Ordinary Least Square (OLS) approach analysis. In the OLS estimator, there are at least four classical assumptions test should be fulfilled to achieve the Best Linear Unbiased Estimators (BLUE), namely Normality test, Multicollinearity test, Heteroscedascity test and Autocorrelation test (Ainiyah et al., 2016; Greene, 2018; Joseph F Hair et al., 2014). For this case, Berenson et al. (2019) uses the LINE terms for describing the regression assumption, i.e., linearity, independence of errors, normality of errors, and equal variance, is viewed has quite similarity with the BLUE terms.

Normality Test

Normality test is used to determine whether or not the normal distribution of data occurrences (Berenson et al., 2019; Greene, 2018). Good research data is data that has a normal distribution. The normal distribution is recognized by the bell shaped of the chart. Data that is not normal can be distinguished from the level of skewed (skewness). If the data tends to be skewed to the left is called positive skewness, if the data tend to be skewed to the right is called negative skewness, and the data is said to be normal if the data is symmetrical (Ainiyah et al., 2016). For the study model was found in a normal distribution data as depict in the following chart:

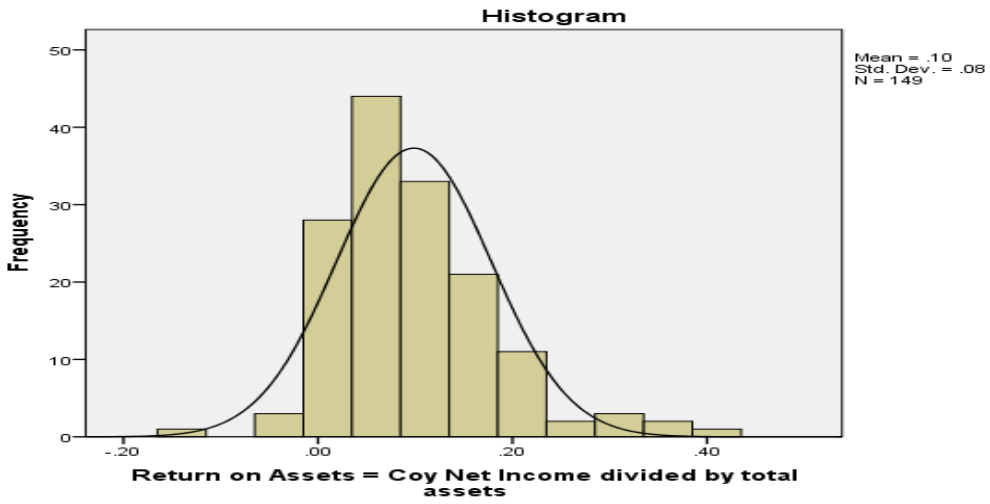

Figure 2. Normality of data of the study model

Multicollinearity Test

It is used to determine the existence of high correlation between variables in a multiple linear regression. If there is a high correlation between the independent variables, then relation between them of the dependent variable will be disrupted. As such, a good regression model should not be a correlated between independent variables, or may be mutually collinear but not highly correlated (Berenson et al., 2019; Greene, 2018; J F Hair et al., 2019). Multicollinearity testing can be done by looking at value of the Variance Inflation Factors (VIF) and the Tolerance. The basis of decision is, if VIF <10 and value of Tolerance > 0.10, then there is no multicollinearity occurrences, and vice versa (Ainiyah et al., 2016). For the study models there was not found a multicollinearity problems as being described with its value of VIF and Tolerance (Table 2)

Table 2. The Value of Tolerance and VIF of the Model

Labels	Variables	Collinearity Statistics	
		ROA	
		Tolerance	VIF
Independent variables	firm leverage	.929	1.077
X1	firm net profit	.929	1.077
X2			

Autocorrelation Test

Autocorrelation test needs to be done if the analyzed data is a time series data (Berenson et al., 2019; Greene, 2018; J F Hair et al., 2019). Autocorrelation testing can be consulted by value of Durbin Watson (DW). The indicator test is as follow: if the DW's value of calculated is outside the lower limit (dL) and the upper limit (dU) value, then the model is not auto-

correlated. The value of DW calculated can be found in the last column of Table 3. The DW value calculation was at 1.899, hence, there is no found autocorrelation problems since the DW's value of the model is outside both of dL and dU values (from the DW table with T observation 148, and K variables is 2, the dL = 1.71773, and dU = 1.74493)

Table 3. The Durbin Watson Values of the Model Study

	ROA
Durbin Watson (DW) Value	**1.899**

Heteroscedascity Test

It is used to test if there is a regression model residual variance inequality from one observation to another observation (Berenson et al., 2019; Greene, 2018; J F Hair et al., 2019). In other words, the variance does not change for each observation or for a range of observations. The easiest way to check this assumption is to create a residual versus fitted value plot. Ideally, the data scattered plot does not have an obvious patterns, which means there are point equally distributed above and below zero on the X axis, and to the left and right of zero on the Y axis.

The summaries of the multiple linear regression results can be seen on the following SPSS output tables.

Table 4. Multiple Linear Regression Results

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.818[a]	.669	.665	.04613	1.899

a. Predictors: (Constant), Company net profit, Company leverage = total debt divided by total assets

b. Dependent Variable: Return on Assets = Company net income divided by total assets

The Coefficient of Determination (R^2) or R-squared

According to Berenson et al. (2019), the coefficient of determination (R^2) is the portion of the total variation in the dependent variable that is explained by variation in the independent variable. In this study, the R-squared (R^2) equals to 0.669 means that 66.9 percent of the variation of the ROA is explained by the variation of independent variables, i.e. firm's leverage and net profit; while the rest (33.1 percent) is explained by other factors that outside of the model.

The Significance of the Overall Multiple Linear Regression Model

According to Berenson et al. (2019), the overall F test is used to determine whether there is a significant relationship between the dependent variable and the entire set of independent

variables (the overall multiple regression model) by calculating the F-test statistics formula, as follows:

$$F_{stat} = \frac{\text{Mean Square Regression (MSR)}}{\text{Mean Square Residual (MSE)}} = \frac{0.314}{0.002} = 157$$

where the hypothesis as follows :

H_0: $\beta_1 = \beta_2 = \ldots = \beta_k = 0$ (no linear relationship)
H_1: at least one $\beta_i \neq 0$ (at least one independent variable affects Y)

The decision rule is reject H_0 at the ά level of significance if $F_{stat} > F_{ά}$ *;* otherwise do not reject H_0.

Through using a 0.05 level of significance, from the SPSS output table 5 can be shown that since the F_{STAT} test statistic is in the rejection region (p-value = 0.000 < 0.05), then it will rejects the H0 . It can be concluded that there is evidence that at least one of independent variables (whether firm leverage and/or firm net profit) affects the ROA.

Table 5. Multiple Linear Regression Results – Analysis of Variance (ANOVA)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.628	2	.314	147.688	.000[b]
	Residual	.311	146	.002		
	Total	.939	148			

a. Dependent Variable: Return on Assets = Company net income divided by total assets

b. Predictors: (Constant), Company net profit, Company leverage = total debt divided by total assets

Multiple Linear Regression Equation and Interpretation

Based on the regression output from the Table 6, the regression equation can be generated as follows:

$\hat{Y}$ = 0.090 – 0.092X_1 + 1.462E-007X_2 ……………………..…………………….(2)

or

$\widehat{ROA}$ = 0.090 – 0.092 (firm leverage) + 1.462E-007(firm net profit)………………..(3)

Table 6. Multiple Linear Regression Results

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	.090	.011		8.164	.000	.068	.111		
	Company leverage = total debt divided by total assets	-.092	.020	-.227	-4.600	.000	-.132	-.053	.929	1.077
	Company net profit	1.462E-007	.000	.728	14.731	.000	.000	.000	.929	1.077

a. Dependent Variable: Return on Assets = Company net income divided by total assets

Where the interpretation of the equation can be summarised as follows:

β_0 = intercept = constant = is the estimated average value of Y when the value of X is zero.
In this case β_0 = 0.090; which means the ROA value is 0.090 if the other independent variables (firm leverage and net profit) are assumed zero;

$\beta_1 = X_1$ slope = estimates the change in the average value of Y as a result of a one-unit increase in X.
In this case where the value of β_1 was -0.092; which means that the mean value of ROA will decrease by 0.092, on average for each one additional unit of the firm leverage, net of the effects of changes due to the firm net profit;

$\beta_2 = X_2$ slope = estimates the change in the average value of Y as a result of a one-unit increase in X.
In this case where the value of β_2 was 1.462E-007; which means that the mean value of ROA will increase by 1.462E-007, on average for each one additional unit of the firm net profit, net of the effects of changes due to the firm leverage.

Testing the Significance of Individual Independent Variables and Applying Null/Alternative Hypothesis
To test the any linear significant relationship between each individual independent variables (Xj) to the dependent variable (Y) is applied the t-test by applying the null and alternative hypothesis as follows :

H_0: $\beta_1 = 0$ (no linear relationship)
H_1: $\beta_1 \neq 0$ (linear relationship does exist between Xj and Y)

From the Table 6 can be described, since the t-test statistic for each variable falls in the rejection region (where *p*-values = 0.000 < .05) for both independent variables, therefore the decision is reject the H_0 for each variable. It can be concluded that there is evidence (statistically significant) that both firm leverage as well as firm net profit affect the firm's ROA at $\alpha = 0.05$.

Confidence Interval Estimates for the Slope

A confidence interval provides additional information about the variability of the estimate of the population characteristics (Berenson et al., 2019). In other words, a confidence interval estimate for the mean value of Y (dependent variable) – which is shown by estimates point between the lower and upper bound in the Table 6, given in a particular X_j (independent variables).

For the firm's leverage variable (X_1) on the Table 6 results can be said that it is 95 percent confident that the average of firm's returns on assets (ROA) is between -0.132 and -0.053 due to the firm's leverage. In other words, at the 95 percent confidence level, it is estimated that the firm's ROA to be decreased by between 0.132 and 0.053 for each additional increase by one unit in the firm's leverage, holding the effect of firm's net profit constant.

It can be concluded that there is a significant relationship between the firm's leverage and the firm's ROA at the 0.05 level of significance. Similarity, it can be summed up for the firm's net profit variable (X_2), at the 95 percent confidence level, it can be estimated that the firm's ROA to be increased, for each additional increase in by one unit of the firm's net profit. Therefore, there is a significant relationship between the firm's net profit and the firm's ROA at the 0.05 level of significance.

The results of this study support the findings of some scholars and researchers who found a significant relationship between leverage and firm's net profit and firm's performance, where higher leverage has a significant negative effect on SMEs' return on assets and higher net profit has a significant effect on SMEs' ROA (Ahmed & Bhuyan, 2020; Aziz & Abbas, 2019; Gharsalli, 2019; Li et al., 2019). However, some scholars found an insignificant effect between leverage and firm performance, especially for family-owned SMEs (Ngatno et al., 2021; Saidat et al., 2019). It is likely assumed that leverage and net profit are not the only important independent variables in family-owned SMEs, especially in developing countries.

Conclusion

From this study, it can be summarised that both independent variables, namely firm's leverage and net profit, have statistically significant effects on SMEs' ROA in Indonesia's listed companies. Thus, this study confirms the findings of the previous study that the firm's leverage ratio has a negative impact on firm performance, while the firm's net profit has a positive impact on firm performance.

Recommendation for Future Research Directions

However, since this study focuses only on the listed SMEs, it is recommended that further studies analysis and measure the effects of the variables in unlisted family firms.

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